

various types of positive electrode materials and their performance characteristics were compared.

(EXAMPLE)

The first and second oxides were prepared in the same manner as in the above Experiment 1.

Also, a third oxide was prepared in the following manner. LiOH, cobalt nitrate ($\text{Co}(\text{NO}_3)_2$) and magnesium nitrate ($\text{Mg}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$) were blended in the ratio by mole of Li to Co to Mg of 1:0.9:0.1. The blend was heat treated in a dry air at 750 °C for 20 hours and then subjected to size reduction to obtain a lithium-cobalt complex oxide (third oxide) having a mean particle diameter of 10 μm and represented by the formula $\text{LiCo}_{0.9}\text{Mg}_{0.1}\text{O}_2$.

The first, second and third oxides such obtained were then mixed in the ratio by weight of 1:0.5:0.5 to prepare a positive electrode material (positive active material).

Using this positive active material, a positive electrode was fabricated in the same manner as in the above Experiment 1.

The procedure of the above Experiment 1 was followed to fabricate a negative electrode and prepare a nonaqueous electrolyte solution.

By using such-obtained positive electrode, negative electrode and nonaqueous electrolyte solution, a battery D in accordance with the present invention was constructed in

the same manner as in the above Experiment 1.

(COMPARATIVE EXAMPLE 6)

In the above Example, the lithium-manganese complex oxide (first oxide) and the lithium-cobalt complex oxide (third oxide) were mixed in the ratio by weight of 1:1 to provide a positive active material for use in the positive electrode. Otherwise, the procedure used to construct the battery D of the present invention was followed to construct a comparative battery Y1.

(COMPARATIVE EXAMPLE 7)

In the above Example, the lithium-manganese complex oxide (first oxide) was used alone to provide a positive active material for use in the positive electrode. Otherwise, the procedure used to construct the battery D of the present invention was followed to construct a comparative battery Y2.

(COMPARATIVE EXAMPLE 8)

In the above Example, a lithium-manganese complex oxide (spinel manganese) represented by LiMn_2O_4 was used alone to provide a positive active material for use in the positive electrode. Otherwise, the procedure used to construct the battery D of the present invention was followed to construct a comparative battery Y3.

(COMPARATIVE EXAMPLE 9)

In the above Example, the lithium-nickel-cobalt complex

oxide (second oxide) was used alone to provide a positive active material for use in the positive electrode. Otherwise, the procedure used to construct the battery D of the present invention was followed to construct a comparative battery Y4.

(COMPARATIVE EXAMPLE 10)

In the above Example, the lithium-cobalt complex oxide (third oxide) was used alone to provide a positive active material for use in the positive electrode. Otherwise, the procedure used to construct the battery D of the present invention was followed to construct a comparative battery Y5.

(COMPARATIVE EXAMPLE 11)

In the above Example, the lithium-manganese complex oxide (spinel manganese) represented by LiMn_2O_4 was used for the first oxide, and this lithium-manganese complex oxide (first oxide) and the lithium-nickel-cobalt complex oxide (second oxide) were mixed in the ratio by weight of 1:1 to provide a positive active material for use in the positive electrode. Otherwise, the procedure used to construct the battery D of the present invention was followed to construct a comparative battery Y6.

(COMPARATIVE EXAMPLE 12)

In the above Example, the lithium-nickel-cobalt complex oxide represented by $\text{LiNi}_{0.8}\text{Co}_{0.2}\text{O}_2$ was used for the second